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REMARKS

Responsive to the Official Action mailed May 2, 2003, Applicants provide the following remarks. Reconsideration and allowance of the subject application, as amended, are respectfully requested.

Claim Amendments

Applicants note, with appreciation, the indicated allowability of claim 4. Claim 4 has been rewritten in independent form to include all of the limitations of claim 1. Allowance of claim 4 is earnestly solicited.

Independent claims 1, 7 and 10 have been amended to more particularly point out that, as opposed to a loop antenna configuration, the claimed invention relates to core antennas wherein the core has "an elongate solid rectangular shape having first and second ends." Support for this amendment may, of course, be found throughout the specification.

New claims 11-22 have been added. Claim 11 depends from independent claim 1 and requires that the "Q value of said antenna is less than or equal to about 20 at an EAS operating frequency." Support for this subject matter can be found in Applicants' specification on page 7, line 5 – 16 which states, in part, "[l]imiting Q to 20 or less prevents ringing of the transmitter signal into the nearby receiver window (as fully explained below), causing false detections."

New independent claims 12 and 16 require a core comprising "a central member disposed between a first outer member and a second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first and second outer members."

Claims 13 - 15 depend directly or indirectly from claim 12, and claims 17-19 depend directly or

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indirectly from claim 16. Support for this the subject matter of claims 12-19 may be found, for example, in FIG. 5 and at page 6, lines 18-27 of the specification.

New claims 20 to 22 are method claims requiring "exciting said core antenna to provide an electromagnetic field in an interrogation zone of an associated electronic article surveillance system; and detecting an electronic article surveillance marker in said interrogation zone."

Support for the subject matter of these claims may be found throughout the specification. No new matter has been added.

35 U.S.C. §103 Rejections

Claims 1-3, 5-8, and 10 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Balch et al (US Pat. No. 6,118,378) in view of Yoshizawa et al (US Pat. No. 5,567,537). The Examiner points to Balch et al as teaching an electronic article surveillance (EAS) system having a loop antenna for generating an electromagnetic field to interrogate and detect electronic article surveillance markers. The Examiner then points to Yoshizawa as teaching using a coiled antenna having a core formed by a plurality of amorphous alloy ribbons insulated from each other and stacked to form a substantially elongated solid rectangular shape.

The Examiner concludes "[i]n view of the teachings by Balch et al. and Yoshizawa et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the specific type of coiled antenna such as taught by Yoshizawa et al. for implementing the interrogation coil antenna of a system such as taught by Balch et al. in order to provide the intended antenna function but at a minimized size, where such minimized antenna size is

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desirable in various EAS applications by minimizing the physical presence, and thereby the associated physical and psychological intrusiveness and unsightliness of the system in typical application environments such as business establishments.” Applicants respectfully traverse this rejection.

Independent claims 1, 7 and 10 each require a core including a “plurality of amorphous alloy ribbons” that are “stacked to form an elongate solid rectangular shape having first and second ends.” A coil winding is disposed about at least a portion of the core with the core and coil winding having “a minimum size for generation of an electromagnetic field for interrogation and detection of electronic article surveillance markers.” The claimed antenna is thus configured to perform the dual role of transmitter and receiver. Neither Balch nor Yoshizawa, either explicitly or implicitly, teach or suggest an EAS core antenna, as claimed.

Balch teaches a pulsed magnetic EAS system incorporating a loop antenna with independent phasing. Loop antenna configurations are configured in a “single, contiguous loop, which may be circular, oval, triangular or rectangular...” Col. 5, lines 50-51. Balch does not teach or suggest a core antenna configuration, as claimed, and the Examiner has not cited it as such.

Yoshizawa teaches a thin film antenna for use in a card such as a PC card or an IC card. The antenna includes a magnetic core that is inductively coupled to a driving circuit. A voltage is induced in the thin film antenna and the antenna transmits a digital code to a remote receiver. The antenna of Yoshizawa thus simply transmits a signal in response to an induced voltage, and is not configured for “interrogation and detection” of a marker, as required by independent claims 1, 7 and 10.

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Moreover, Yoshizawa specifies that the "thickness of the laminated magnetic core is 3 mm or less, preferably 1 mm or less." Column 5, lines 57-58. In other words, the thinner the magnetic core element the better. Yoshizawa thus teaches away from the claimed invention by teaching a thickness of preferably less than 1mm, and not teaching any scalability of such an antenna to achieve a core and winding having "a minimum size" for generation of an electromagnetic field for interrogation and detection of EAS markers, as required by independent claims 1, 7 and 10.

Neither Balch nor Yoshizawa teach or suggest a core antenna configured for "interrogation and detection" of EAS markers or a core and coil winding of "a minimum size" for interrogation and detection of EAS markers, as required by claims 1, 7 and 10. As such, there is no combination of the cited references one could make to achieve the claimed invention. Even if Balch or Yoshizawa did provide some teaching or suggestion of these essential claim limitations, there is nothing in the references that would have prompted one skilled in the art to make the combination at the time the invention was made. Balch teaches a loop antenna system, and Yoshizawa teaches that the inductively coupled transmitting antenna disclosed therein should have thickness of 3mm or less.

Accordingly, it is respectfully submitted that the rejection of claims 1-3, 5-8, and 10 under 35 U.S.C. § 103(a) as being unpatentable over Balch et al in view of Yoshizawa et al should be withdrawn upon reconsideration. Claims 2-3, 5, and 6 depend from claim 1, and claims 8-9 depend from claim 7. These claims are in condition for allowance by virtue of their dependency, as well as for their own limitations.

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New claim 11 depends from claim 1 and requires that the "Q value of said antenna is less than or equal to about 20 at an EAS operating frequency." As discussed in the specification at page 7, line 5 – 16, "[l]imiting Q to 20 or less prevents ringing of the transmitter signal into the nearby receiver window (as fully explained below), causing false detections." In contrast, Yoshizawa teaches that its antenna have a Q value of "25 or more, preferably 35 or more, and more preferably 40 or more" at its operating frequency. Column 5, lines 58 - 60.

Yoshizawa presents test results comparing thin film antennas with "comparative examples." As shown in Table 1 of Yoshizawa, comparative examples 1 and 2 for Antennas B and C exhibit Q values of 20 and 15 respectively. Yoshizawa states that "the antenna B and C were poor in the Q-value, this resulting in a low sensitivity of the antenna and no oscillation. Therefore, the antenna B and C are also not suitable for use as the thin antenna." Column 8, lines 40 - 43 (emphasis added).

Therefore, not only does Yoshizawa fail to disclose, teach, or suggest an antenna with Q-values as required by claim 11, it actually teaches away from such Q-values indicating such Q-values are not suitable. Claim 11 is thus believed to be allowable over the cited references by virtue of its dependency from claim 1, as well as for its own limitations.

Claims 1-3 and 7-10 have been rejected under 35 USC §103(a) as being unpatentable over Martinides (US Pat. No. 5,371,490) in view of Yoshizawa et al (US Pat. No. 5,567,537). Applicants respectfully traverse this rejection.

As discussed above, Yoshizawa fails to teach or suggests a core antenna configured for "interrogation and detection" of EAS markers and a core and coil winding of "a minimum size" for interrogation and detection of EAS markers, as required by independent claims 1, 7 and 10.

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Martinides fails to provide these missing teachings, and has not been cited as such. In fact, Martinides teaches a loop antenna configuration, and provides no teaching of a core antenna as claimed.

It is respectfully submitted, therefore, that the rejection of claims 1-3 and 7-10 under 35 U.S.C. § 103(a) as being unpatentable over Martinides in view of Yoshizawa et al should be withdrawn upon reconsideration. Claims 2-3 depend from claim 1, and claims 8-9 depend from claim 7. These claims, as well as claim 11, are in condition for allowance by virtue of their dependency, as well as for their own limitations.

New claims 12-22

New claims 12 and 16 require, among other things, that the "core comprises a central member disposed between a first outer member and a second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first or second outer members." There is nothing in any of the cited references that teaches or suggests such a core. Claim 12 also requires that the core and coil winding have "a minimum size for generation of an electromagnetic field for interrogation and detection of electronic article surveillance markers." Accordingly, Applicants respectfully submit that claims 12 and 16 are in condition for allowance for the reasons above adduced relative to claim 1, as well as for their own limitations. Claims 13-15 depend from claim 12, and claims 17-19 depend from claim 16. These claims are in a condition for allowance by virtue of their dependency and also in view of their own limitations.

New claim 21 is a method claim requiring "exciting said core antenna to provide an electromagnetic field in an interrogation zone of an associated electronic article surveillance

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system; and detecting an electronic article surveillance marker in said interrogation zone." As discussed above, Yoshizawa does not disclose, teach, or suggest a method including "exciting said core antenna to provide an electromagnetic field in an interrogation zone of an associated electronic article surveillance system; and detecting an electronic article surveillance marker in said interrogation zone." Instead, Yoshizawa teaches a thin film antenna for use in an IC or PC card of a size similar to a credit card where the antenna is somewhat pliable for enabling a certain amount of deformation of the antenna without cracking. Also, the antenna in Yoshizawa is inductively excited for transmitting a digital code, and is not configured for establishing an interrogation zone and detecting EAS markers within the zone.

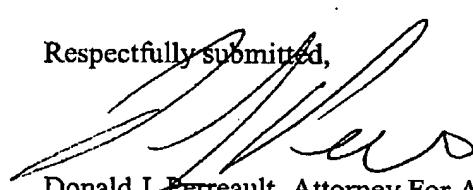
Accordingly, Applicants respectfully submit that in light of the foregoing claim amendments and remarks, all of the presently pending claims are now in a condition for allowance. Reexamination and reconsideration are respectfully requested.

Early allowance is earnestly solicited. In the event the Examiner deems personal contact desirable in disposition of this application, the Examiner is respectfully requested to call the undersigned attorney at (603) 668-6560.

Applicants have added three (3) additional independent claims in excess of three, and two (2) additional claims in excess of twenty. Enclosed is form PTO-2038 authorizing credit card payment of the additional claim fees of \$268. No other fees are believed to be due. In the event there are any fee deficiencies, please charge them (or credit any overpayment) to our Deposit Account No. 50-2121.

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Respectfully submitted,


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